

WHAT IS CLAIMED IS:

1. A method for high-speed massive magnetic imaging on a spin-stand comprising the steps of:

(a) establishing a hard disk mounted on a spindle of a spin-stand;

(b) establishing the position and orientation of said hard disk through a track-centering and track-following procedure to account for eccentricity of said hard disk with respect to the center of rotation of said spindle;

(c) measuring data from said hard disk with a magnetic read head responsive to a triggering signal;

(d) maintaining alignment of said magnetic read head whereby said magnetic read head is positionally located to be driven to a preselected orientation with respect to said hard disk;

(e) establishing numerical alignment of said data to account for the instability of said triggering signal and said spindle of the spin-stand; and,

(f) returning to step (e) prior to a completion of reading said data from said hard disk.

2. The method for high-speed massive magnetic imaging on a spin-stand as recited in Claim 1 wherein said track-centering and track-following procedure includes the step of measuring skew angles of individual tracks of said hard disk.

3. The method for high-speed massive magnetic imaging on a spin-stand as recited in Claim 2 wherein said skew angles are imaged on an oscilloscope.

4. The method for high-speed massive magnetic imaging on a spin-stand as recited in Claim 3 wherein said step (b) includes mechanical adjustment of said hard disk and said spindle responsive to image data displayed on said oscilloscope.

5. The method for high-speed massive magnetic imaging on a spin-stand as recited in Claim 3 wherein skew angle images include numerical shifting of skew angle data displayed on said oscilloscope.

6. The method for high-speed massive magnetic imaging on a spin-stand as recited in Claim 1 wherein said step of measuring data includes the step of establishing a drive index of said spindle, said drive index being a measure of each complete revolution of said hard disk.

7. The method for high-speed massive magnetic imaging on a spin-stand as recited in Claim 6 wherein said triggering signal is generated responsive to said drive index.

8. The method for high-speed massive magnetic imaging on a spin-stand as recited in Claim 1 wherein said step (e) includes the step of measuring a first set of voltages corresponding to successive measurements of a first set of tracks of said hard disk measured in a circumferential direction.

9. The method for high-speed massive magnetic imaging on a spin-stand as recited in Claim 8 wherein step (e) includes the step of measuring a second set of voltages corresponding to successive measurements of a second set of tracks of said hard disk measured in a circumferential direction, said first set of tracks and said second set of tracks being radially positioned adjacent each with respect to the other.

10. The method for high-speed massive magnetic imaging on a spin-stand as recited in Claim 9 wherein step (e) includes said first set of voltages being cross-correlated with said second set of voltages.

11. The method for high-speed massive magnetic imaging on a spin-stand as recited in Claim 10 wherein step (e) includes the step of shifting said first set of voltages in said circumferential direction such that said cross-correlation is maximized.

12. The method for high-speed massive magnetic imaging on a spin-stand as recited in Claim 1 wherein the step of track-centering includes micro-positioning of said hard disk such that the written track center of said hard disk is brought into alignment with the reading track center of said magnetic read head.

13. The method for high-speed massive magnetic imaging on a spin-stand as recited in Claim 1 wherein said step of track-following includes programming a head actuator of said spin-stand to follow the curve of a modulated track in the radial direction.

14. A system for high-speed massive magnetic imaging on a spin-stand comprising:

a spin-stand having a rotationally driven spindle projecting therefrom;

a magnetic hard disk mounted on said spindle;

a magnetic read head mounted on said spin-stand for reading data stored on said magnetic hard disk;

an oscilloscope for displaying read-back voltages generated by said magnetic read head, said oscilloscope being electrically coupled to said magnetic read head; and,

processor means electrically coupled to said oscilloscope for storing and translating data signals generated by said magnetic read head.

15. The system for high-speed massive magnetic imaging on a spin-stand as recited in Claim 14 wherein said spin-stand includes adjustable securement means for securing said magnetic hard disk to said spindle.

16. The system for high-speed massive magnetic imaging on a spin-stand as recited in Claim 14 wherein said oscilloscope displays skew angle data of tracks of said magnetic hard disk.

17. The system for high-speed massive magnetic imaging on a spin-stand as recited in Claim 16 wherein said processor means receives said skew angle data and adjusts said data signals to compensate for skew angle deviation.

18. The system for high-speed massive magnetic imaging on a spin-stand as recited in Claim 16 further comprising counting means for generation of a drive index which updates incrementally with each full revolution of said spindle.

19. The system for high-speed massive magnetic imaging on a spin-stand as recited in Claim 18 wherein measurements of said magnetic read head are made responsive to a triggering signal based upon said drive index.

20. The system for high-speed massive magnetic imaging on a spin-stand as recited in Claim 14 wherein said processor means compares measurements of adjacent sets of tracks of said hard disk to calibrate said data signals and adjust said data signals for skew angle deviation.

21. The system for high-speed massive magnetic imaging on a spin-stand as recited in Claim 14 further comprising display means for displaying scanned image data, said display means being in electrical communication with said processor means.

22. The system for high-speed massive magnetic imaging on a spin-stand as recited in Claim 14 further comprising a universal head preamplification board mounted on said spin-stand for producing said read-back voltages responsive to initial signals generated by said magnetic read head.